

# Advanced Product Water Removal and Management (APWR) Fuel Cell System, Phase I

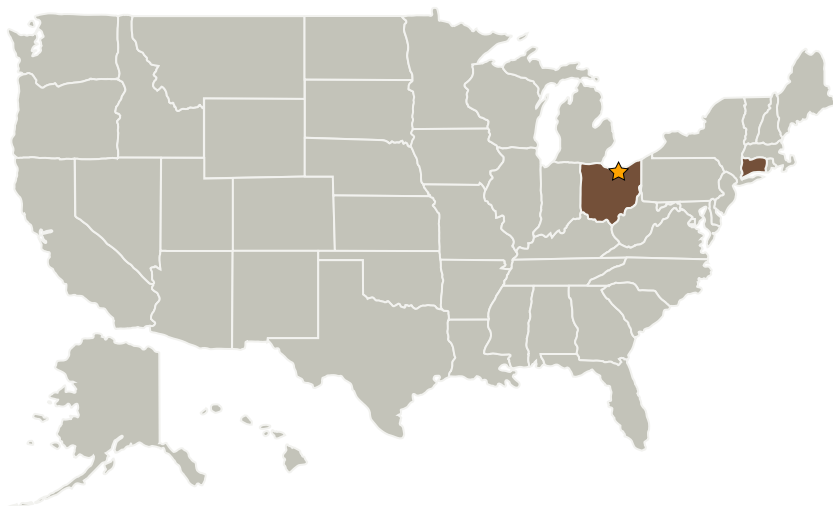
Completed Technology Project (2005 - 2005)



## Project Introduction

The proposed innovation is a passive, self-regulating, gravity-independent Advanced Product Water Removal and management (APWR) system for incorporation into Polymer Electrolyte Membrane (PEM) primary fuel cell power plants. Passive water removal is incorporated into each cell of the power plant stack. Only pressure differential is required to manage within the cell and to remove and discharge liquid product water from the power plant. The APWR system eliminates the gas circulator, centrifugal separator, heat exchanger (condenser) and controls that comprise the water management system in the conventional aqueous electrolyte fuel cell power plants now in service. It also can simplify the reactant supply system by elimination of fuel and oxidant humidifiers. No rotating or active components or gas circulation are required in the APWR system. APWR is based on PEM technology proven in industrial and automotive applications but not applied to space power plants.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center (GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Infinity Fuel Cell and Hydrogen, Inc.	Supporting Organization	Industry	Windsor, Connecticut



Advanced Product Water Removal and Management (APWR) Fuel Cell System, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

# Advanced Product Water Removal and Management (APWR) Fuel Cell System, Phase I

Completed Technology Project (2005 - 2005)



## Primary U.S. Work Locations

Connecticut

Ohio

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

William Smith

## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.2 Energy Storage
    - └ TX03.2.2 Electrochemical: Fuel Cells